



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,614	02/28/2002	William R. Rehman	11694-04182 (98-134D)	8104
27483	7590	10/18/2004	EXAMINER	
CALFEE, HALTER & GRISWOLD, LLP 800 SUPERIOR AVENUE SUITE 1400 CLEVELAND, OH 44114			KOCH, GEORGE R	
			ART UNIT	PAPER NUMBER
			1734	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/085,614

Applicant(s)

SOMEBODY

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 31 and 34-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31, 34-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Talacko (US 4,747,546) in view of Lader (US 5,622,313).

Talacko discloses a powder coating material spray gun having a spray nozzle (see Figure 4) and powder coating material flowing through said spray gun and being sprayed from said spray nozzle, further comprising an electrode (item 101) positioned in front of said spray nozzle to charge powder coating material sprayed from said spray nozzle, wherein the spray gun is constructed from a tribocharging material which tribocharges the powder coating material. The electrode of Talacko is capable of being charged to either a positive or negative polarity, depending on the selected polarity of the high voltage generator circuit (item 74 - see column 4, lines 31-47).

However, Talacko is silent as to the charge polarity of the powder resulting from the tribocharging material.

Lader discloses that it is known to use either a positive or negative tribocharging surfaces (see column 1, lines 56-64), depending on the material selected for coating. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

Art Unit: 1734

invention to have utilized such tribocharging materials based on the powder material in order to achieve a functional coating.

3. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Talacko and Lader as applied to claim 34 above, and further in view of Vohringer.

Talakco and Lader are silent as to the construction of the powder feed tube.

As to claim 37, Vohringer discloses a tribocharging gun wherein the interior of the spray gun is made of tribo-charging material (see column 4, lines 63-68). This would include the powder feed tube (item 11), the pump (item 37) and powder hose (item 34), as well as elements within the tube which are components having a surface that is contacted by powder during a spraying operation of the gun (such as displacement body. One in the art would immediately appreciate that increasing tribocharging material results in an increase in the contact surface, and thus an increase in the charging capacity of the device, and ensures better coating quality. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such additional tribocharging material contact surfaces in the powder feed tube in order to increase the charging capacity of the device, resulting in improved coating quality.

4. Claim 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Talacko and Lader as applied to claim 31 above, and further in view of any of (1) (a) Handbook of Plastic Compounds, Elastomers and Resins with (b) Powder Coating : The

Art Unit: 1734

complete finisher's handbook 1<sup>st</sup> Edition (2) Conductive Polymers and Plastics or (3) Mammino (US 5,683,844) or (4) Peck (4,090,666) and the Delrin AF fact sheet from Interstate Plastics (published in 1999) or (5) Walberg (US 3,896,994).

Talacko is silent as to many of the materials used.

Lader does not disclose that any of the claimed materials can form the tribocharging surface. However, Lader does disclose that materials used as powders can be reversed to be used as charging surfaces, and vice versa (see column 1, lines 56-64). Therefore, Lader discloses that it is known to reverse materials for triboelectric operations - i.e., use powders as contact surface and vice versa.

As to the aminoplastic resin, Handbook of Plastic Compounds, Elastomers and Resins discloses that it is known to use aminoplastic resins as a coating material for automobile primer and enamel applications (for example, any of the Uformite ® entries on page 65). Automobile painting is conventionally performed by an electrostatic coating process (for example, see page 1 of Powder Coating, which discloses that electrostatic powder spray is the most common form of spraying in industrial applications). Under the reversibility principle disclosed in Lader, these aminoplastic resins can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an aminoplastic as the charging surface.

As to the polyamide or polyamide resin blends, Conductive Polymers and Plastics (in pages 181-187) discloses polyamide resin blends such as polyphenylene

Art Unit: 1734

ether and polyamide as a coating material for electrostatic coating. Under the reversibility principle disclosed in Lader, these polyamide resin blends can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a polyamide resin blend as the charging surface.

As to the polyamide or fiber reinforced polyamide, Mammino discloses fiber reinforced polyamide such as fibrillated PTFE (see columns 5 through 7 and polyamide as a coating material for electrostatic coating applications. Under the reversibility principle disclosed in Lader, these fiber reinforced polyamides can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a fiber reinforced polyamides as the charging surface.

As to the polyamide or acetal polymer, Peck discloses that it is known to use delrin (an acetal polymer), nylon (a polyamide) and Teflon in the fluid flow due to their excellent transfer efficiencies. Further, the specifications for delrin AF (a mixture), published in 1999, disclose that delrin AF, an acetal bulk resin with 20% PTFE (see applicants specification, page 12) has similar dielectric properties to ordinary delrin. Ordinary delrin has a dielectric constant of 3.7 and a dielectric strength of 380 Volts/mil, and delrin AF has a dielectric constant of 3.1 and a dielectric strength of 400 Volts/mil. Since triboelectric charging effectiveness is a factor of dielectric properties, one in the

Art Unit: 1734

art would appreciate that delrin AF is an acceptable substitute of the delrin surface cited in Peck. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal polymer combined with polytetrafluoroethylene fibers such as Delrin AF as part of the charging surface in Lader since Peck discloses using delrin and delrin AF is equivalent to delrin, and such a substitution could lead to improved transfer properties.

As to another version of an acetal polymer, Walberg discloses that the internal mix cap, a part of the fluid flow, is manufactured from Celcon, cited by applicant as an acetal copolymer. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal copolymer as part of the charging surface.

As to claims 34, official notice is taken that is considered well known and conventional to mix the above disclosed materials to form a tribocharging surface, in order to modulate the charging strength of the surface and powder, in order to achieve different charging effects.

As to claim 35-36, Peck as applied to claim 34 above discloses using Delrin materials in electrostatic operations, and Delrin AF is an acetal resin bulk material with PTFE therein, specifically Delrin AF is has 20% PTFE.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 31, 34-37 have been considered but are moot in view of the new ground(s) of rejection.
6. Talacko addresses the limitation of the electrode being positioned in front of the nozzle and has a corona charging structure which is capable of being used to either charge the material to positive or negative. Lader discloses that the tribocharging materials can be either positive or negative.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571)

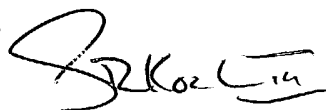


Art Unit: 1734

272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III  
Patent Examiner  
Art Unit 1734

GRK  
10/13/2004



**CHRIS FIORILLA**  
**SUPERVISORY PATENT EXAMINER**

*AU 1734*